

December 5th, 1877.—J. W. DUNNING, Esq., M.A., F.L.S., Vice-President, in the Chair.

Mr. Distant exhibited two rare species of West African *Hemiptera-Heteroptera*, viz., *Tetroxia Beauvoisi*, Fairmaire, and *Oncocéphalus subspinosus*, A. and S., both only known hitherto from the mutilated typical examples.

Mr. F. Smith exhibited a series of both sexes of *Macropis labiata*, captured by Mr. Bridgman, near Norwich; the ♂ had hitherto been extremely scarce. Also a specimen of *Rophiles 4-spinosus*, a genus and species of Aculeate *Hymenoptera* new to Britain, captured at Guestling, near Hastings, by the Rev. E. N. Bloomfield; it is an insect of wide distribution on the continent.

Mr. Meldola exhibited photographic enlargements of photographs, taken by Mr. E. Viles, of Wolverhampton. Two of these represented the mouth parts of a bee and fly respectively, enlarged ten diameters from the original negatives. He further exhibited an acoustic apparatus, illustrating the action of the stridulating apparatus of *Pterinoxylus*, as described by Mr. Wood-Mason at the November meeting: the apparatus consisted of a bell, thrown into vibration by a violin-bow, and the sound enhanced by the application of an air-chamber. He also exhibited a specimen of *Gongylus gongyloides*, alluded to at the previous meeting as a mimicking insect.

Mr. Wood-Mason detailed the results of further investigation of the stridulating apparatus of scorpions: he had detected at the base of each pair of legs carrying the apparatus, a well-defined pore opening into the interior of the leg.

Mr. F. Smith mentioned that he had noticed stridulation to exist in a small weevil (*Acalles roboris*) found at Deal, but the sound was scarcely audible, unless several were confined in the same box; the sound is produced by the friction of the segments of the abdomen against the under-surface of the elytra. His attention had been called to this subject in consequence of the discovery by Mr. Wollaston of a musical *Acalles* in Madeira.

Mr. Dunning called attention to a paper recently published in the Proceedings of the Cambridge Philosophical Society, by Mr. Neville Goodman, M.A., on a striking instance of mimicry between a dipterous insect (*Laphria*), and a hornet (*Vespa orientalis*), both found in the same districts.

The Secretary directed attention to a letter in "Nature" (Nov. 15th, 1877), detailing some experiments upon *Abraxas grossulariata*, tending to shew that the insect was sensitive to sound.

Mr. F. Smith read Descriptions of new species of *Hymenoptera* collected by Prof. Hutton at Otago, in New Zealand, and exhibited the insects.

Mr. Butler read a paper on the *Sphingæ* and *Bombyces* collected by Prof. Trail on the Amazons in the years 1873—1875.

Dr. Sharp communicated Descriptions of eight new species of *Cossonides* from New Zealand, and of a new genus and some new species of *Rhyncophora* from the Sandwich Islands.

ADDITIONS TO THE GEODEPHAGOUS FAUNA OF NEW ZEALAND.

BY H. W. BATES, F.L.S.

Several of the species described in the following pages, as will be observed, are remarkable forms of the family *Carabidæ*, and form an interesting addition to our rapidly-growing knowledge of New Zealand *Coleoptera*.

PTEROSTICHUS (TRICHOSTERNUS) DIFFORMIPES, *n. sp.*

Elongato-oblongus, niger, suprâ rubro-cupreo tinctus, modice convexus; capite ovato, oculis modice prominentibus, collo haud crasso; thorace quadrato, postice modice sinuatum angustato, angulis posticis prominulis, subacutis; elytris elongato-ovatis, apicem versus paulo sinuatis, suprâ punctulato-striatis, interstitiis æqualibus, vix convexis, tertio et quinto prope apicem bi-, septimo septem-punctatis, punctis longe setiferis. Mas: femoribus intermediis subtus late dentatis, tibiis intus emarginatis et apice paulo dilatatis.

Long. $10\frac{1}{2}$ lin., ♂ ♀.

Wellington, not uncommon in the same localities as *P. (Trich.) planiuseulus* (Mr. C. M. Wakefield).

Rather more slender and less robust in form than the typical species of *Trichosternus*; the head especially is narrower and not thickened behind; there is a moderate orbit behind the eyes. The elytra are scarcely more convex than in *T. Guérini* (Chaud.), but the striae are simply and very finely punctulated, and the interstices smooth and but slightly convex. The somewhat obscure red-coppery tinge is diffused over the elytra, and on the thorax is most brilliant near the hind angles.

PTEROSTICHUS LOBIPES, *n. sp.*

Elongato-oblongus, sub-depressus, niger, sericeo-nitidus; capite quadrato, orbita postice magis quam oculo prominenti, collo paululum constricto; thorace quadrato, pone medium modice sinuato-angustato, marginibus crenulatis, angulis posticis acutissimis; elytris valde elongatis, juxta basin transversim depressis, prope apicem fortiter sinuatis, suprâ punctulato-striatis, interstitiis planis, 3^{io}, 5^{to}, et 7^{to}, quinque-punctatis. Mas: tibiis intermediis apice extus lobato-productis. Long. $2\frac{1}{2}$ lin., ♂.

Otira River, West Coast of Southern Island (Mr. C. M. Wakefield).

SYLLECTUS, *nov. gen.* Fam. HARPALIDÆ.

Facies Anchomeni. Antennarum pubescentia ad articulum tertium incipiens: forcis frontilibus versus oculos curvatis; tarsorum articulis quatuor pedum 2 anteriorum tantum dilatatis, plantis dense æqualiter pubescentibus. Mandibulæ valde elongatæ, graciles, subrectæ. Palpi subnudi, articulis terminalibus gradatim longe acuminatis. Mentum medio dentatum. Ligula apice libera, bisetosa, paraglossis angustis. Pedes graciles, subtiliter setosæ, tarsi supra nudi.

The present genus is another of those remarkable antarctic forms of *Carabidæ*, like *Oopterus*, *Merizodus*, *Euthenarus*, *Lecanomerus*, and others, of which we have no near allies in the Northern Hemisphere. It is more anomalous, however, than any of the others just mentioned, uniting in itself the characters of various other groups in a most remarkable manner. The *four* dilated joints of the tarsi, and the pubescence of the 3rd antennal joint, bring it within the definition of the *Harpalidæ*, although its small head and long slender mandibles are utterly unlike any other known Harpalideous form. The clothing of the soles of the dilated joints resembles that of the *Anisodactylinæ*, but differs in the hairs being less brush-like. The four dilated joints are equal in breadth, and are broadly cordate in shape.

The frontal foveæ resemble in their depth and direction those of the *Acupalpus* group, but are scarcely so sharply incised. The metasternal episterna are elongate, and their epimera normal in shape. The palpi are fully as acute as in the *Trechis*, but their terminal joints are rather broader near the base, *i. e.*, more fusiform in figure. The tooth in the centre of the emargination of the mentum is as long as the side lobes, and has a pair of strong bristles at its base. Upon the whole, I am inclined to think the nearest affinities of this interesting form are in the direction of such genera as *Lecanomerus* and *Trachysarus*.

SYLLECTUS ANOMALUS, *n. sp.*

Modice convexus, politus, nigro-piceus: partibus oris, antennis, pedibusque fulvo-testaceis: capite parvo, oculis prominulis: thorace capite vix latiori, quadrato, ante medium paulo rotundatim dilatato, angulis posticis rectis; elytris thorace plus quam duplo latioribus, ante apicem leviter sinuatis, passim æqualiter sub-punctulato-striatis, interstitio 3^{io} pone medium unipunctato. Long. $2\frac{1}{2}$ lin., ♂ ♀.

Similar in form to *Anchomenus*, but of small size, glossy piceous-black, with the antennæ, legs and parts of the mouth tawny testaceous; in some examples the femora and palpi are paler and yellowish. The thorax is but little broader than the small head, and is quadrate in shape, with the sides a little rounded outwards anteriorly, and incurved posteriorly, with distinct hind angles; the surface is smooth, with a long, and rather deep, but wholly smooth fovea on each side. The elytra are broad in comparison with the head and thorax, very glossy, and striated with equal distinctness throughout, the striæ being indistinctly punctulated.

Auckland, New Zealand. In my own collection and that of Dr. D. Sharp.

CILLENUM ALBESCENS, n. sp.

Oblongo-ellipticum, convexum, politum, pallido-testaceum, capite, thoracis medio, elytrorum macula discoidali, ventrisque basi fusco-æneis, antennis pedibusque robustis, thorace cordato-ovato, basi angustato, angulis posticis obtusis; elytris margine laterali usque prope apicem late explanato, apice late subtruncato, rotundatis, supra striatis, interstitio tertio tripunctato. Mas: tarsi anticis articulis duobus, præcipue extus, dilatatis.

Long. 2-2½ lin., ♂ ♀.

Tairua, near Auckland (Capt. Broun).

A very remarkable and handsome species of the sub-family *Bembidiinæ*, which I place in the genus *Cillenum*, on account of its long, sharp, and curved mandibles, robust, short, submoniliform antennæ, and explanated lateral veins of the elytra. The last mentioned peculiarity, it is true, is not so strongly marked in the European *Cillenum*, but it is, nevertheless, distinctly perceptible, the dilated portion terminating rather abruptly before the apex of the elytra, giving a subtruncated appearance to those members. The New Zealand species differs from our *Cillenum*, in being decidedly convex and elliptical in form, and especially in the long, robust legs. The antennæ do not differ in relative proportions from *Cillenum*. The head is also very similar in shape; the eyes are not prominent, the frontal furrows broad, smooth, and shallow, and the setiform puncture on the margin of the eye is exceedingly large. The thorax is convex, glossy, impunctate, cordate-ovate, narrowed gradually behind to the obtuse hind angles; a transverse depression extends across the base, but there are no very distinct foveæ. The elytra are elliptical, perfectly rounded at the shoulders; the lateral margin is dilated most strongly after the middle, the widened recurved rim ends before the apex quite abruptly; the striæ are scarcely perceptibly crenated, strongly impressed except near the apex. The general colour of the insect is pale testaceous-yellow; the crown of the head (as far as the base of the clypeus), the central part of the thorax and middle of its base and apex, and a large triangular spot on each elytron, are dark brassy; the elytral spot extends from the 2nd to the 7th stria, posteriorly it approximates to the suture, which also is dark. The basal ventral segments are dark brown.

BEMBIDIUM TAIRUENSE, n. sp.

Quoad formam, B. tibiali (Dufts.) simile; gracilius, elongatum, depressum, piceo-nigrum, paulo anescens, palpis, antennis pedibusque piceo-rufis; thorace anguste cordato, foreolis basalibus simplicibus juxta angulum sitis; elytris punctato-striatis, interstitiis 3^{to} et 5^{to} punctis setiferis munitis. Mas: tarsorum anticorum articulo basali tantum dilatato, oblongo.

Long. 2-2½ lin.

Many examples from Capt. Broun.

Belongs to the same group as *B. charile* and *maorinum*, a group of *Peryphus* apparently peculiar to New Zealand, having a cordiform thorax not at all dilated at the posterior angles, with a narrow, simple fovea close to the angle, and with setiform punctures on the 5th, as well as on the 3rd, elytral interstice. The head and thorax in *B. Tairuense* are small in comparison with the elytra, and quite destitute of punctuation; the frontal foveæ, as in the allied New Zealand species, are broad and deep; the eyes only moderately prominent. The elytra are elongate-oblong-ovate, rather depressed, and with rather strongly impressed and closely punctured striæ, the interstices being plane; the first and second striæ converge at the base into a depression, the outer striæ do not reach the base, and leave a smooth space near the shoulder; striæ 2—7 become very faint near the apex.

The species is closely allied to *B. maorinum*, from Christchurch, and it would be difficult in a description to make their difference clear, though their general aspect is very distinct; *B. maorinum* being broader, more brightly æneous; the elytra much broader, the striæ less impressed, &c.

BEMBIDIUM PARVICEPS, n. sp.

Gracile, modice convexum, nigrum, vix ænescens, politum, palpis, pedibus antennisque fusco-piceis, his articulo basali rufo; capite parvo, forcis frontilibus latis, profundis; thorace cordato, angulis posticis haud prominentibus; elytris grosse striato-punctatis, striis (1^{mo} excepta) longe ante apicem subito evanescentibus.

Long. 2 lin.

Tairua, near Auckland (Capt. Broun).

Belongs to none of the European sections of *Bembidium*, but nearest allied perhaps to *Peryphus*. The frontal furrows (broad and deep, without marginal ridges) and the form of the thorax (with contracted hind angles and simple fovea) are the same as in the *Peryphus maorinum* group; but the 5th elytral interstice has no setiferous punctures. The head is small, and the eyes are not so prominent as usual in *Bembidium*. The thorax is also small, and impunctate; it is cordate, gradually narrowed behind until near the base, and then its sides are straight, without the slightest projection of the posterior angles, which are indeed scarcely rectangular; the basal fovea is narrow, and lies close to the marginal rim. The elytra are elongate-oval, coarsely punctured in slightly impressed rows; the punctures and striæ abruptly ceasing at about two-thirds the length, except the sutural and marginal striæ; the sutural stria is, as usual, a little recurved at the apex, and the hook thus formed is distinctly separated by a smooth ridge from the recurved marginal stria.

BEMBIDIUM ANCHONODERUM, n. sp.

Elongato-ovatum, ænescenti-nigrum, politum, palpis, antennis pedibusque piceis; thorace rotundato, angulis posticis haud explanatis, anguste foveatis, supra lateribus subtiliter alutaceis; elytris punctato-striatis, striis prope apicem paulo debilioribus, interstitio tertio bipunctato. Mas: tarsorum anticorum articulis duobus basalibus dilatatis, apice intus productis.

Long. 1 $\frac{3}{4}$ –2 lin., ♂ ♀.

Variat colore suprâ æneo.

Tairua, near Auckland; 2 examples (Capt. Broun).

Belongs apparently to the same group as *B. parviceps*; but the thorax is quite different in shape, being more broadly and regularly rounded at the sides, and rather abruptly narrowed at the base; the lateral margins very narrow, without projection at the hind angles, which are, nevertheless, rectangular. The frontal furrows are broad, deep, and simple. The head is rather small, and the eyes only moderately prominent. The back of the head and the sides of the thorax are very finely shagreened, and there are some wrinkles on the disc of the latter. The elytra are elongate-ovate, rather convex: the striæ are tolerably deep, and only a little less impressed on nearing the apex, the 1st and 2nd are indeed deeper near the apex, the 2nd flexuous, and joining the recurved apex of the 1st; the 7th is distinct; the punctures are moderately large, but become much fainter towards the apex.

BEMBIDIUM EUSTICTUM, n. sp.

Elongato-ovatum, suprâ æneum, politum; palpis, antennis, pedibusque rufo-piceis; thorace late rotundato, angulis posticis distinctis, marginibus postice nullo modo explanatis, foveolis basalibus angustis; elytris ovatis, grosse punctato-striatis, striis 2–7 ante apicem evanescentibus; interstitio tertio punctis duobus, anteriori maximo, notato.

Long. 1 $\frac{1}{4}$ –1 $\frac{2}{3}$ lin.

Tairua, near Auckland; 4 examples (Capt. Broun).

Very closely allied to *B. anchonoderum*; differing only in its rather smaller size, its broader thorax and relatively shorter elytra, the conspicuously larger anterior puncture on the 3rd elytral interstice, and the obliteration of all the middle striæ before the apex.

BEMBIDIUM CALLIPEPLUM, n. sp.

Elongato-ovatum, nitidum, æneum, antennis basi, pedibus, elytrisque flavo-testaceis, his pone medium plaga communi angulata fusco-ænea; thorace rotundato-cordato, basi angustato, lævi, angulis posticis nullo modo explanatis, subobtusis, vix foveatis; elytris punctato-striatis, striis versus basim vix impressis, tertio tri-punctato. Mas: tarsorum anticorum articulis duobus basalibus dilatatis, apice extus productis.

Long. 1 $\frac{3}{4}$ lin.

Wellington; from Mr. Wakefield.

Belongs to the same group as *B. anchonoderum* and *rotundicolle*; but distinguished by its pale testaceous elytra, with a large angular fuscous spot a little behind the middle. This spot forms a triangle on each elytron, with the external angle extending to the sides of the elytra; behind, it is a little prolonged on the suture. The head has deep, broad, and simple frontal foveæ. The antennæ are pale at the base, becoming gradually dusky towards the tip. The thorax (impunctate, like the head) is cordate, but with very rounded sides, narrowed behind, first gradually, and at the base, more suddenly; the hind angles are closely applied to the trunk, and rather obtuse. The elytra are much rounded at the shoulders; the punctate striæ are deeper near the apex than near the base; the exterior striæ are, however, somewhat faintly impressed towards the apex. The legs are pale yellowish, with the joints of the tarsi tipped with dusky.

PTEROSTICHUS LOBIPES. The length of this species is erroneously given on p. 191, as only $2\frac{1}{2}$ lin.; it should be $12\frac{1}{2}$ lin.

Bartholomew Road, Kentish Town, N.W.:

1st December, 1877.

ON THE ECONOMY, &c., OF *BOMBYLIUS*.

BY T. ALGERNON CHAPMAN, M.D.

The few items in the history of these flies that I have accidentally observed may be of use to others who propose, with more determination, to thoroughly work it out. I watched the oviposition of a small brown species, a number of years ago, when observing the habits of *Odynerus spinipes*. A portion of the same hot, sunny bank where *spinipes* had a colony was frequented by this species, which would approach tolerably close to me when I refrained from moving; the process of oviposition was conducted against the bank of earth in a manner closely similar to that adopted by dragon-flies on the surface of water; the fly (not, of course, a pair, as with dragon-flies) would approach the bank within an inch or so, and carefully examine it, and, if satisfied, would make a little sudden swoop, bringing the extremity of the body close to the bank, by passing from a horizontal to a sloping attitude, yet not touching it, the small white egg being seen to be thrown with a short jerk against the bank. On several occasions I noticed very closely the spot, but always failed to find the egg, which was not, however, surprising in the rough and cracked earth. I over and over again, however, satisfied myself that it was not thrown into the burrow of any bee, though *Halictus* and others were numerous in the same bank.